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ABSTRACT

A study was conducted to determine how well gifted students in grades 4-6 should be reading and whether traditional reading expectancy formulas are useful in predicting reading achievement of gifted students in the upper elementary grades. The total reading scores on the Comprehensive Test of Basic Skills (Form Q2) for 624 fourth and sixth graders were divided into categories according to the student's IQ range and grade level. Average reading achievement ranged from two to nearly four years above grade level. Reading achievement increased in direct relationship to IQ. No significant differences were found between the achievement of males and females within each IQ range at each grade level studied. Three reading expectancy formulas, the Harris, Los Angeles, and Bond and Tinker, were used to compare the actual reading achievement of the gifted fourth and sixth graders with predictions of their performance at this time. The Harris formula predicted actual reading achievement most accurately. It was concluded that the Harris formula is a more accurate predictor, that it should prove useful in predicting individual achievement in reading, and that it could be useful in identifying remedial readers among the gifted population. (RM)

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Predicting Reading Achievement
for the Gifted Upper Grade Student
in Relation to the Wall 4-11

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Predicting Reading Achievement
for the Gifted Upper Grade Student
in Relation to the Stull Bill

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Just how well should gifted students in grades 4-6 be reading? Are traditional reading expectancy formulas useful in predicting reading achievement of gifted upper grade students?

Since the advent of the Stull bill which requires teachers to predict end of the year achievement of students in California, teachers of the gifted have been asking themselves questions such as these. A review of professional books, journals, ERIC documents and dissertations from 1967 to the present revealed that these questions have not recently been investigated by educational researchers.

To investigate these questions I conducted a research study, sponsored by the Institute for Reading at California State University, Fullerton, and funded by a CSUF Faculty Research grant. Three school districts in Orange County cooperated in the study: Newport-Mesa Unified, Orange Unified and Placentia Unified.

What is the actual reading achievement of gifted children in grades 4 and 6? To answer this question the total reading scores on the Comprehensive Test of Basic Skills (Form Q2) for 624 4th and 6th graders from twenty-eight different schools were recorded. These data were divided into categories according to the student's IQ range (as determined by his score on the Stanford-Binet or WISC) and grade level. The mean grade equivalent score within each category was computed.

As can be seen on Table 1, the average reading achievement on the CTBS test of the gifted students in grades 4 and 6 ranges from two to nearly four years above grade level. The relationship between IQ and achievement appears to be clear, as reading achievement increases in direct relationship to IQ.

Are there significant differences between the total reading achievement scores of gifted boys and gifted girls? Teachers have wondered if the reading achievement of gifted boys and girls might differ significantly, and thus effect predictions of reading performance.

Table 2 summarizes the findings of this study in relation to the 4th and 6th grade boys and girls participating in this study. People who have criticized current reading programs for being unappealing to boys will be interested to note that no significant differences were found between the achievement of boys and girls within each IQ range at each grade level investigated in this study.

Table 1

Analysis of IQ and Reading Achievement for Grades 4 and 6

Grade Level	IQ Range	Mean Reading Grade Equivalent Score	N
4.2	130-139	5.3	161
	140-149	6.8	82
	150+	7.6	30
6.2	130-139	9.0	186
	140-149	9.6	110
	150+	10.8	53

Table 2

Analysis of Reading Achievement for Boys and Girls within Each IQ Range at Each Grade Level

Grade Level	IQ Range	Mean Reading Grade Equivalent Scores		T test	DF	Sign.	N	
		Boys	Girls				B	G
4.2	130-139	6.2	6.4	-0.9120	159	NS	77	84
	140-149	7.0	6.7	1.1808	82	NS	43	41
	150+	7.5	7.6	-0.0873	28	NS	9	21
6.2	130-139	8.9	9.0	-0.4022	184	NS	95	91
	140-149	9.6	9.6	0.0367	108	NS	57	53
	150+	9.9	10.0	-0.1296	51	NS	30	23

What similarities exist between the actual reading achievement scores of gifted children in grades 4 and 6 and expected performance based on several measures of reading expectancy? According to Harris (p. 208), reading expectancy is an informed estimate of the level of reading ability most consonant with the relevant facts known about an individual. Relevant facts include IQ, age, amount and quality of schooling, familiarity with standard English, and sociocultural background.

Three reading expectancy formulas were used to compare the actual reading achievement of gifted 4th and 6th graders in this study and predictions of their performance at this time. The three formulas are the Harris formula, the Los Angeles formula and the Bond and Tinker formula. In each of these formulas

XA = expectancy age
 XG = expectancy grade
 CA = chronological age
 MA = mental age

Harris Formula: $XA = \frac{2MA + CA}{3}$

$XG = XA - 5.2$

(Harris, 1970)

Los Angeles Formula:

For students between the ages of 8-6 and 9-11:

$XA = \frac{3MA + 2CA}{5}$

For students between the ages of 10-0 and 11-11:

$XA = \frac{2MA + CA}{3}$

Once a child's XA has been computed, it is translated into a XG score by use of an age-grade equivalency table (Torgenson and Adams, 1954).

Bond and Tinker Formula:

$XG = \text{year in school} \times IQ \div 1.0$

(Bond and Tinker, 1967)

Using an average CA of 9.2 for grade 4 students and 11.2 for grade 6 students, and the following IQ for each range --- 135 (130-139), 145 (140-149) and 155 (150+), a comparison can be made of actual achievement and

expected achievement for each formula. Table 3 shows this comparison numerically. A study of these comparisons reveals that the Harris formula more closely approximates the actual reading achievement of gifted students in this study than do the other two formulas.

Table 3
Comparison of Actual and Expected Reading
Achievement of 4th and 6th Grade Gifted Students

Grade Level	IQ Range	Actual Achievement	Expected Achievement		
			Harris	Los Angeles	Bond & Tinker
4.2	130-139	6.3	6.1	5.8	5.3
	140-149	6.8	6.9	6.2	5.6
	150+	7.6	7.4	6.8	6.0
6.2	130-139	9.0	8.6	8.3	8.0
	140-149	9.6	9.3	9.1	8.9
	150+	10.0	10.1	9.6	9.1

Conclusions

1. The Harris formula appears to predict more accurately actual reading performance than do either the Los Angeles or the Bond and Tinker formulas.
2. The Harris formula should prove useful in predicting reading achievement of groups of gifted learners in grades 4 and 6. For purposes of implementing the Stull bill it provides guidelines which may help in predicting individual achievement in reading.
3. The Harris formula could be useful in identifying remedial readers among the gifted population, since remedial readers have been defined as those students whose achievement is two or more years below their reading expectancy.

Cautions

1. In using a reading expectancy formula to predict end of year reading performance, the teacher is reminded that he will need to use the chronological age of the student at the end of the school year in computing the formula.
2. The teacher of linguistically or culturally different gifted learners may want to take these factors into consideration as well as the factors included in the expectancy formula when predicting end of year reading performance for these students.
3. Standardized reading achievement tests establish grade equivalent scores on the basis of the number of questions answered correctly. For example, if the median raw scores for all students in the fourth month of grade 5 (5.4) is 18 on a certain test, then the test manual reports that the grade equivalent of a raw score of 18 on that test is 5.4. Any student who answers exactly 18 items on that test correctly is given a grade equivalent score of 5.4.

The results of standardized testing therefore do not necessarily mean that a child has mastered all of the reading skills presumably known by a child who is reading at that level. Additional teacher observation, formal and informal testing will be needed to assess the particular strengths and limitations of that learner in reading.

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